

<i>Project Title</i> Subsurface Drainage for Landslide and Slope Stabilization		<i>Agmt./Task No.</i> GCA6381	<i>Item No.</i>	<i>Agency Bgt. No.</i>
<i>Research Agency</i> WSU/Desert Research Institute (DRI)		<i>Start Date</i> 3/2007	<i>Estimated Completion</i> 12/2010	<i>Revised Completion</i> 6/2011
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<i>Funding Source</i> CA, MD, MS, MT, NH, OH, PA, TX, WA, WY		<i>Schedule Status</i> <input type="checkbox"/> On schedule <input checked="" type="checkbox"/> On revised schedule <input type="checkbox"/> Ahead of schedule <input type="checkbox"/> Behind schedule		
<i>Research Area</i> <input type="checkbox"/> Bridges & Structures <input checked="" type="checkbox"/> Operations & Materials <input type="checkbox"/> Environment <input type="checkbox"/> Traffic & Intelligent Transportation Systems Evaluation <input checked="" type="checkbox"/> Highway Design & Safety <input type="checkbox"/> Mobility & Intermodal Planning				
<i>Original Estimated Cost</i> \$ 300,000	<i>Revised Cost</i>	<i>% Funds Expended</i> 35%	<i>% Work Completed</i> 40%	
<i>Objective</i> (1) Provide best practices and guidance for subsurface drainage applications for slope stabilization, including subsurface investigation and testing, groundwater-flow characterization, analysis, drain configurations and design, installation methods, monitoring, and maintenance. (2) Evaluate new applications of existing materials and technologies, such as trenchless technologies (horizontal directional drilling, micro tunneling, guided boring, etc.) and other innovative technologies and materials, for stabilizing slopes using subsurface drainage.				

Project Progress:

The primary goal during the first quarter of the project was to conduct a literature review to identify the current state-of-practice of subsurface drainage design. The literature review consisted of reviewing books, reports and peer-reviewed articles in the fields of irrigation and drainage and geotechnical engineering, hydrology, and mining. The ultimate goal is to examine existing methodologies that can be readily applied to the conditions found in most slope stability sites.

A wealth of literature was reviewed from the above-specified research fields. A comprehensive reference list has been created. A variety of characterization activities, measurement technologies, analytic/graphical, and numerical modeling techniques have been identified for potential use in the design manual.

New Period Proposed Activity:

During the next quarter an agenda will be created and meeting scheduled with the technical advisory committee. During this meeting we will discuss what we have learned from the literature review, begin the selection process from characterization and design methodologies, and select two field sites for validation purposes.